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REMARKS

The Office action has been carefully considered. The Office action rejected claims 11, 18-20, 22, 37, 39, and 50-51 under 35 U.S.C. § 112, second paragraph as being indefinite. Further, the Office action rejected claims 1-2, 4-6, 8, 10 and 52-53 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,483,805 to Davies et al. ("Davies"). Further yet, the Office action rejected claim 7 under 35 U.S.C. § 103(a) as being unpatentable over Davies. Still further, the Office action rejected claims 3 and 9 under 35 U.S.C. § 103(a) as being unpatentable over Davies in view of U.S. Patent No. 6,310,881 to Zikan et al. ("Zikan"). Finally, the Office action rejected claims 11-51 under 35 U.S.C. § 103(a) as being unpatentable over Davies in view of U.S. Patent No. 6,910,024 to Krishnamurthy et al. ("Krishnamurthy"). Applicants respectfully disagree.

By present amendment, claims 1, 8, 11, 23-25, 37, 40-41, 45, 50, 51, and 52 have been amended for clarification and not in view of the prior art. Applicants submit that the claims as filed were patentable over the prior art of record, and that the amendments herein are for purposes of clarifying the claims and/or for expediting allowance of the claims and not for reasons related to patentability. Reconsideration is respectfully requested.

Applicants thank the Examiner for an attempt for an interview to be held (by telephone) on March 16, 2006. Despite the Examiner's refusal to recognize Kevin D. Jablonski (Reg. No. 50,401) as an attorney of standing to conduct a telephone interview, the essence of applicants' position is incorporated in the remarks below.

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In specifically addressing the Examiner's refusal to allow Mr. Jablonski an interview, it is respectfully pointed out that such a request is statutory and proper even without being listed as an attorney of record. See 37 CFR § 1.34(a); MPEP § 713.05 and MPEP § 408.

Prior to discussing reasons why applicants believe that the claims in this application are clearly allowable in view of the teachings of the cited and applied references, a brief description of the present invention is presented.

The present invention is directed to a system and method for reducing network congestion, essentially by combining "aspects" of congestion notification and congestion pricing. For example, congestion pricing triggers the sender into reducing transmit rates. In general, mechanisms for removing each flow's bottleneck is deliberately moved into the source, such as into its operating system, thereby reducing queuing and latency in the network itself. A cooperative distributed algorithm is used to adjust these artificial bottlenecks so as to proportionally share bandwidth according to a globally consistent policy. Significantly, the network runs in a less congested state, and enables proportional sharing of bandwidth. Congestion is avoided by the use of continuous feedback, rather than by providing notification once congestion had occurred. The present invention also facilitates the use of heterogeneous protocols.

As such, aspects of the subject matter disclosed are directed to assigning each flow (which may be anything from a single TCP connection to a large aggregate) a weight. The source operating system introduces an artificial bottleneck for the flow, e.g., using a token-bucket shaper with a sustained rate.

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Routers on the path taken by the flow maintain and advertise a path load estimate.

End-systems voluntarily adjust the artificial bottleneck, e.g., such that the rate

equals the weight divided by the load estimate. The load estimate is adjusted (e.g.,

relatively slowly) up or down by routers such that the aggregate arrival rate

matches a target utilization of the bottleneck link. Setting the target utilization to

something less than full utilization (e.g., ninety percent) has been found to

dramatically reduce the mean queue length.

Example embodiments of the subject matter disclosed by applicants further

include packets that may carry two additional fields, referred to herein as LOAD

and RLOAD. As outbound packets pass through routers, the aggregate demand

for resources on its route is accumulated in the LOAD field. When a packet

reaches its destination, this information is recorded and periodically returned to the

source in the RLOAD field of any packet traveling in the opposite direction, (which

is not necessarily a symmetric route). For example, the RLOAD message may be

included in the next IP packet going from the destination to the source (e.g. a TCP

ACK segment), but it may alternatively be conveyed in a separate packet if the flow

has no back-channel. When received, the source system adjusts the sustained

token rate of the token-bucket shaper according to the incoming load notification

messages and the flow weight parameter. Avoidance is thus achieved according

to the cooperative distributed algorithm. Note that the above description is for

example and informational purpose only and should not be used to interpret the

claims, which are discussed below.

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§112 Rejections

Regarding the 35 U.S.C. § 112 rejections, the Office action rejected claims

11, 18-20, 22, 37, 39, and 50-51 alleging that they were indefinite. Applicants,

however, disagree that claims 11, 18-20, 22, 37, 39, and 50-51 are indefinite.

Notwithstanding this disagreement, for further clarification, claims 11, 37, and 50

have been amended to further clarify the term "willingness to pay threshold".

Furthermore, claim 51 recites acknowledging the receipt of the received

packets and wherein controlling a rate of transmitting packets on the network

comprises controlling a rate of acknowledging the receipt of packets by the

computing device. The Office action expressed confusion as to whether this

activity is occurring at a router. Clearly, the nature of this question shows a

fundamental misunderstanding of the invention as claim 45 and any subsequent

dependent claim therefrom do not recite or imply the use or implementation of any

router. The controlling of packet rates and acknowledging receipts of packets is

accomplished at the computing device and not at any interim router.

Applicants respectfully submit that claims 11, 18-20, 22, 37, 39, and 50-51

meet the requirements of 35 U.S.C. § 112.

§102(e) Rejections

Turning to the claims, amended claim 1 recites a computer-implemented

method, comprising, receiving network load information corresponding to network

load, at a source of network packets generated therein as original packets free of

containing any retransmitted content, wherein the network load information is

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determined by network traffic, and controlling a rate of a flow of packets at the

source based on the network load information and a weight value associated with

the flow.

The Office action rejected claim 1 as being anticipated by Davies. In

specific, the Office action contends that Davies teaches the recitations of claim 1 at

column 8, lines 9-65. Applicants respectfully disagree.

Davies is directed to a system and method for managing data packet traffic

by differentiating between classes of data packets. More specifically, the cited and

applied sections of Davies teach three classes of data packets: class A for each

initial packet of each request and/or response; class B for packets that are not

initial packets or last packets; and class C for packets that are the last packet of a

request and/or response. Having this class information at hand, a router may

manage traffic based on the class information at the router.

However, claim 1 recites controlling, at a source of network packets

generated therein as original packets free of containing any retransmitted content,

a rate of a flow of packets from the source to a destination. In contrast to the

recitation of claim 1, Davies never teaches or even suggests anything but, "[e]ach

router comprises a processor 10a connected to input streams .... As each packet

passes through a router in a network, the router can keep track of the difference

between the number of transaction start (A) and transaction end (C) packets which

have passed in a particular direction. The router can then use this traffic

information to limit the total number of transactions in progress." Davies, col. 8,

lines 27-44. In other words, Davies discloses a mechanism for controlling the flow

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of retransmitted traffic *at routers* instead of "at a source of network packets generated therein as original packets free of containing any retransmitted content" as recited in claim 1. In fact, a thorough reading of Davies in its entirety fails to provide any indication that Davies even contemplates controlling, *at a source*, a rate of a flow of packets from the source to a destination.

Despite the Office action characterizing routers as a source of network traffic, this is simply not a commonly accepted interpretation of how a router functions. Routers simply retransmit data as received to destinations indicated by the individual data packets. While it some network information may be added to the data packets as they pass through routers, the entirety of the underlying content is retransmitted as a whole with no addition or removal of content data. That is, a router is not capable of generating data packets as original data packets free of any retransmitted content; a router is simply not a source.

Anticipation under 35 U.S.C. § 102 requires the disclosure in a single prior art reference of each and every element of the claim under consideration, and each element must be arranged as in the claim. Davies does not teach or in any way come close to suggesting receiving network load information corresponding to network load, at a source of network packets generated therein as original packets free of containing any retransmitted content, wherein the network load information is determined by network traffic, and controlling a rate of a flow of packets at the source based on the network load information and a weight value associated with the flow as recited in claim 1. For at least the above reasons, Davies fails to meet the requirements for supporting a §102 rejection of this claim, and applicants

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respectfully request reconsideration and withdrawal of the rejection of claim 1

based on Davies.

Applicants respectfully submit that dependent claims 2 and 4-6, by similar

analysis, are allowable. Each of these claims depends either directly or indirectly

from claim 1 and consequently includes the recitations of independent claim 1. As

discussed above, Davies fails to disclose the recitations of claim 1 and therefore

these claims are also allowable over the prior art of record. In addition to the

recitations of claim 1 noted above, each of these dependent claims includes

additional patentable elements.

Turning to the next independent claim, amended claim 8 recites in a

computer network, a system comprising, a source of a flow of data generated

therein as original data free of containing any retransmitted content, a destination

node that receives at least some of the flow of data from the source, a router

between the source and destination that is configured to compute network load and

associate load value information of the router corresponding to the network load

with the data, a mechanism configured to provide the value corresponding to the

network load to the source, and the source including a mechanism that controls a

rate of the flow of further data based on the value corresponding to the network

load and a weight associated with the flow of further data.

The Office action rejected claim 8 as being anticipated by Davies. The

Office action cites that same sections of Davies that were cited with respect to the

rejection of claim 1. Applicants respectfully disagree.

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As discussed above, Davies is merely directed to a system and method of
using a router, which is a device that is incapable of generating original data to
facilitate network traffic (and in fact has as its primary purposes the retransmission
of data). Davies thus does not teach or suggest a system including a source of a
flow of data generated therein as original data free of containing any retransmitted
content, a destination node that receives at least some of the flow of data from the
source, a router between the source and destination that is configured to compute
network load and associate load value information of the router corresponding to
the network load with the data, a mechanism configured to provide the value
corresponding to the network load to the source, and the source including a
mechanism that controls a rate of flow of further data based on the value
corresponding to the network load and a weight associated with the flow of further
data as essentially recited in claim 8. For at least the above reasons, Davies fails
to meet the requirements for supporting a §102 rejection of this claim, and
applicants respectfully request reconsideration and withdrawal of the rejection of
claim 8 based on Davies.

Applicants respectfully submit that dependent claim 10, by similar analysis,
is allowable. This claim depends directly from claim 8 and consequently includes
the recitations of independent claim 8. As discussed above, Davies fails to
disclose the recitations of claim 8 and therefore these claims are also allowable
over the prior art of record. In addition to the recitations of claim 8 noted above,
each of these dependent claims includes additional patentable elements.

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Turning to the next independent claim rejected under §102, amended claim 52 recites a computer-implemented method, comprising, receiving load information corresponding to network load at a destination of network packets, wherein the network load information is determined by network traffic, and at a source of originally generated network packets free of retransmitted content, controlling a rate of a flow of packets from the source to the destination based on the load information and a weight value associated with the flow.

The Office action rejected claim 52 as being anticipated by Davies. The Office action cites that same sections of Davies that were cited with respect to the rejection of claim 1. Applicants respectfully disagree.

As discussed above, Davies is merely directed to a system and method of using a router to facilitate network traffic. Davies does not teach or suggest receiving load information corresponding to network load at a destination of network packets, wherein the network load information is determined by network traffic, and at a source of originally generated network packets free of retransmitted content, controlling a rate of a flow of packets from the source to the destination based on the load information and a weight value associated with the flow as essentially recited in claim 52.

Moreover, Davies does not disclose, suggest, or remotely hint at controlling, at a source, a rate of a flow of packets from the source of original data packets to a destination. Rather, if anything, Davies *teaches directly away* from doing so as Davies discloses a mechanism for controlling the flow of traffic *at routers* which are incapable of generating any original data packets free of retransmitted content.

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Davies, col. 8, lines 27-44. Throttling packets at each of the sources of the packets

within the network, corresponding to the claims, is unquestionably *not* the same as

controlling a rate of flow of packets at centralized sources (*e.g.*, routers) as in

Davies.

For at least the above reasons, Davies fails to meet the requirements for

supporting a §102 rejection of this claim, and applicants respectfully request

reconsideration and withdrawal of the rejection of claim 52 based on Davies.

Therefore, claim 52 and its single dependent claim 53 are patentable over the cited

art.

§103(a) Rejections

Turning to the 35 U.S.C. § 103(a) rejections, the Office action rejected claim

7 under 35 U.S.C. § 103(a) as being unpatentable over Davies. Further, the Office

action rejected claims 3 and 9 under 35 U.S.C. § 103(a) as being unpatentable

over Davies in view of Zikan. Finally, the Office action rejected claims 11-51 under

35 U.S.C. § 103(a) as being unpatentable over Davies in view of Krishnamurthy.

With regard to claims 3, 7, and 9, applicants respectfully submit that these

dependent claims, by similar analysis to the reasons stated above with respect to

claims 1 and 8, are allowable. These claims depend either directly or indirectly

from one of allowable claims 1 and 8 and consequently include the recitations of

independent claims 1 or 8. As discussed above, Davies fails to disclose the

recitations of claims 1 and 8. Furthermore, Davies, whether considered alone or in

any permissible combination with any other prior art of record, including Zikar, still

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fails to teach or suggest the recitations of claims 1 and 8 or any dependent claims

therefrom. Therefore claims 3, 7 and 9 are also allowable over the prior art of

record. In addition to the recitations of claims 1 and 8 noted above, each of these

dependent claims includes additional patentable elements.

Turning to the remaining independent claims, the Office action rejected

these claims (claims 11, 25, and 45) as being unpatentable over Davies in view of

Krishnamurthy. Applicants respectfully disagree.

These rejections are improper as a matter of law. In order to establish *prima*

facie obviousness of a claimed invention, all of the claim limitations must be taught

or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA

1974). In addition, "all words in a claim must be considered in judging the

patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385,

165 USPQ 494, 496 (CCPA 1970). Further, if prior art, in any material respect

teaches away from the claimed invention, the art cannot be used to support an

obviousness rejection. *In re Geisler*, 116 F.3d 1465, 1471, 43 USPQ2d 1362, 1366

(Fed Cir. 1997).

Referring to the rejection of claim 11, amended claim 11 generally recites:

obtaining price information corresponding to network load at the computer system,

the price information being determined by actual network traffic relative to network

capacity; and controlling a rate of transmitting data at a source on the network, the

source generating the data as an original data free of containing any retransmitted

content, the controlling based on the price information and a value representative

of a willingness to pay threshold, wherein the willingness to pay threshold

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corresponds to an assigned predetermined number associated with an operator of

the computer system.

In contrast and as argued above, Davies does not deal with controlling a

rate of transmitting data at a source on the network wherein a source is capable of

generating original data packets free of retransmitted content. Rather, Davies is

directed toward a mechanism for controlling the flow of traffic at routers. Davies,

col. 8, lines 27-44. Significantly, Krishnamurthy does not cure the deficiencies of

Davies. The Office action states, "[t]he pricing information, although not taught in

Davies, is taught in Krishnamurthy in the same field endeavor of controlling rates of

traffic based on load." Office action, pg. 8, sec. 38. Krishnamurthy does not

disclose, suggest, or remotely hint at controlling a rate of transmitting data at a

source on the network. Therefore, in any possibly permissible combination,

Krishnamurthy and Davies do not disclose or suggest controlling a rate of

transmitting data at a source. Thus, in any permissible combination, the cited

references fail to disclose or suggest applicants' claimed subject matter.

Furthermore and as argued above, Davies actually *teaches directly away* from

controlling a rate of flow of packets at a source. Applicants respectfully request

that the Davies reference be removed.

In summary, neither Davies nor Krishnamurthy, alone or in any permissible

combination, teach, disclose, or remotely hint at the limitations of applicants' claim

11. At least for these reasons, claim 11 and the claims that depend thereon are

patentable over the cited art.

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Moreover, the Office action does not provide proper motivation for combining Davies with the subject matter discussed in Krishnamurthy. By law, in order to support a § 103(a) rejection, there must be some teaching, suggestion, or motivation other than applicants' teachings for modifying a cited reference or combining references to achieve the claimed invention. The Office action does not indicate any suggestion or motivation in the prior art of record, either explicit or otherwise, for modifying the references or combining the references in a manner that would achieve the claimed invention, or point out any teaching as to how such a modification or combination might be accomplished, or what might be accomplished thereby. Instead the Office action merely recites, "it would have been obvious...to modify the Davies invention with the pricing teachings of Krishnamurthy for commercial success as well as controlling the available resources of the network based upon who is willing to pay for those resources. (Krishnamurthy, column 4, lines 21-25) Davies supports this combination in Column 3, lines 14-20 and column 2, lines 19-22." Office action, pg. 8, sec. 38.

Applicants strongly and wholly disagree with this unsupported conclusion. A closer reading of the cited text reveals the Davies cite is to the 'Background to the Invention' section of the patent that states, "[i]t is becoming clear that certain customers and types or applications need (and customers would be prepared to pay for) a service that is implemented over existing best efforts service." Davies, col. 2, lines 19-22. It is unclear to the applicants how this cite as well as the other cites could possibly provide proper motivation to combine Davies with Krishnamurthy to achieve the subject matter as claimed by applicants. Such

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broad, conclusory statements do not come close to adequately addressing the

issue of motivation to combine, are not evidence of obviousness, and therefore are

improper as a matter of law. *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d

1614, 1617 (Fed. Cir. 1999).

Furthermore, even if the references were somehow combinable in the

manner suggested by the Office action (which applicants submit is not

permissible), they would still fail to teach controlling a rate of transmitting data at a

source as generally recited in claim 11. At least for this additional reason, claim 11

and the claims that depend thereon are patentable over the cited references.

Similarly, independent claims 25 and 45, as amended, are each patentable

over the cited art. As discussed above, neither Davies nor Krishnamurthy nor any

permissible combination of Davies and Krishnamurthy disclose or suggest

controlling a rate of transmitting data at a source as generally recited in claims 25

and 45. For at least this reason, claims 25 and 45, and the claims that depend

thereon, are patentable over the cited references.

For at least these additional reasons, applicants submit that all the claims

are patentable over the prior art of record. Reconsideration and withdrawal of the

rejections in the Office action is respectfully requested and early allowance of this
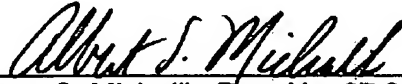
application is earnestly solicited.

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CONCLUSION

In view of the foregoing remarks, it is respectfully submitted that claims 1-53 are patentable over the prior art of record, and that the application is in good and proper form for allowance. A favorable action on the part of the Examiner is earnestly solicited.

If in the opinion of the Examiner a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney at (425) 836-3030.

Respectfully submitted,

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